



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/236,350	01/25/1999	ISAMU UENO	35.C13282	1615
5514	7590	10/21/2003	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			MISLEH, JUSTIN P	
			ART UNIT	PAPER NUMBER
			2612	
DATE MAILED: 10/21/2003				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/236,350	UENO ET AL.
	Examiner	Art Unit
	Justin P Misleh	2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 29 August 2003.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1 - 10, 38, and 39 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1 - 8, 38, and 39 is/are rejected.
 7) Claim(s) 9 and 10 is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 25 January 1999 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 11) The proposed drawing correction filed on 21 August 2003 is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) The translation of the foreign language provisional application has been received.
 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____.
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>6 and 8</u> .	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

The Examiner handling future prosecution of this Application and authoring this Office Action would like to inform the Applicant that the Examiner handling the previous prosecution of this Application and authoring Office Actions (Paper No. 9 and 12, 12/27/02 and 5/21/03, respectively) are different and all future communication regarding this Application should be directed to the Examiner authoring this Office Action. The Examiner's contact information can be found at the end of this Office Action.

Response to Arguments

1. The Examiner notes that this Office Action is in response to the *Response After Final Action* filed 29 August 2003. The Examiner acknowledges and accepts the sworn translation provided by the Applicant, however, the Examiner does not believe the application is in condition for allowance. New grounds of rejection have been made with respect to the foreign priority date (30 January 1998) and this Office Action is meant to replace the Final Office Action (Paper No. 12) mailed on 21 May 2003.
2. By request of the Applicant, an initialed copy of each Form PTO-1449 filed in the Office for this application is attached to this Office Action.
3. By request of the Applicant, the Examiner acknowledges that claims 11 – 37 were canceled in the Amendment dated 27 March 2003 (Paper No. 10).
4. By request of the Applicant, The Examiner approves all changes to the drawings made thus far by the Applicant for this application.

5. Applicant's arguments with respect to claims 1 – 10, 38, and 39 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. **Claims 1, 2, 38, and 39** are rejected under 35 U.S.C. 102(e) as being anticipated by

Takizawa et al.

8. For **claims 1 and 38**, Takizawa et al. disclose, as shown in figures 2A, 4, 5, and 6 and as stated in columns 6 (lines 24 – 29) and column 8 (lines 42 – 54), an image pickup apparatus comprising: a plurality of pixels (clearly shown in figure 2A); and a color filter array of four colors disposed on said plurality of pixels (see figures 4, 5, and 6), wherein said color filter array has a periodicity of two rows by two columns (see column 8, lines 42 – 54), and wherein colors of color filters in a periodical unit of two rows by two columns are all different from each other and have fixed positions (Mg, G, Cy, and Ye of figure 4).

9. As for **claims 2 and 39**, Takizawa et al. disclose, as shown in figure 4, an image pickup apparatus according to claim 1, wherein the color filters in the periodical unit include a filter for transmitting only green light (G of figure 4) in a visible light range, a filter for intercepting only blue (Ye of figure 4) color in the visible light range, filter for intercepting only green light (Mg

of figure 4) in the visible light range, and a filter for intercepting only red light (Cy of figure 4) in the visible light range.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. **Claims 3 – 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa et al. in view of Ukita et al.

12. As for **claim 3**, Takizawa et al. disclose, an image pickup apparatus comprising: a plurality of pixels; and a color filter array of four colors disposed on said plurality of pixels, wherein said color filter array has a periodicity of two rows by two columns, and wherein colors of color filters in a periodical unit of two rows by two columns are all different from each other and have fixed positions. Takizawa et al. do not disclose, the image pickup apparatus further comprising a first operation unit which performs an operation of $A + B - C - D$, where A, B, C, and D represent signals picked up from an area of two rows by two columns.

However, Ukita also disclose, as shown in figure 8, an image pickup apparatus comprised of a plurality of pixels and a color filter array of four colors (Mg, G, ye, and Cy) disposed on said plurality of pixels wherein colors of color filters within a unit of two rows by two columns are all different (clearly shown in figure 8). In addition, Ukita disclose, as shown as stated in columns 15 (lines 33 – 64), 16, and 17 (lines 1 – 59), the image pickup apparatus further comprising a

first operation unit which performs an operation of $A + B - C - D$ (see column 15, lines 44 – 54), where A, B, C, and D represent signals picked up from an area of two rows by two columns. As stated in columns 16 (7 – 12), at the time the invention was made one with ordinary skill in the art would have been motivated to include the first operation performing the operation $A + B - C - D$ as taught by Ukita in the image pickup apparatus of Takizawa et al. as a means to provide a luminance and a color difference signal for each pixel thereby yielding a high resolution color separation. Therefore, at the time the invention was made, it would have been obvious for one with ordinary skill in the art to include the first operation performing the operation $A + B - C - D$ as taught by Ukita in the image pickup apparatus of Takizawa et al.

13. As for **claim 5**, Takizawa et al. disclose, an image pickup apparatus comprising: a plurality of pixels; and a color filter array of four colors disposed on said plurality of pixels, wherein said color filter array has a periodicity of two rows by two columns, and wherein colors of color filters in a periodical unit of two rows by two columns are all different from each other and have fixed positions. Takizawa et al. do not disclose, the image pickup apparatus further comprising a first operation unit which performs an operation of $A + C - B - D$, where A, B, C, and D represent signals picked up from an area of two rows by two columns.

However, Ukita also disclose, as shown in figure 8, an image pickup apparatus comprised of a plurality of pixels and a color filter array of four colors (Mg, G, ye, and Cy) disposed on said plurality of pixels wherein colors of color filters within a unit of two rows by two columns are all different (clearly shown in figure 8). In addition, Ukita disclose, as shown as stated in column 15 (lines 33 – 64), 16, and 17 (lines 1 – 59), the image pickup apparatus further comprising a first operation unit which performs an operation of $A + C - B - D$ (see column 16, lines 39 – 46),

where A, B, C, and D represent signals picked up from an area of two rows by two columns. As stated in columns 16 (7 – 12), at the time the invention was made one with ordinary skill in the art would have been motivated to include the first operation performing the operation A + C – B – D as taught by Ukita in the image pickup apparatus of Takizawa et al. as a means to provide a luminance and a color difference signal for each pixel thereby yielding a high resolution color separation. Therefore, at the time the invention was made, it would have been obvious for one with ordinary skill in the art to include the first operation performing the operation A + C – B – D as taught by Ukita in the image pickup apparatus of Takizawa et al.

14. As for **claims 4 and 6**, Ukita disclose, the image pickup apparatus wherein the signals A and B are disposed on a same line or on a same column, and the signals C and D are disposed on a same line or column.

15. As for **claim 7**, Takizawa et al. disclose, an image pickup apparatus comprising: a plurality of pixels; and a color filter array of four colors disposed on said plurality of pixels, wherein said color filter array has a periodicity of two rows by two columns, and wherein colors of color filters in a periodical unit of two rows by two columns are all different from each other and have fixed positions. Takizawa et al. do not disclose, the image pickup apparatus further comprising a first read-out unit which reads out a difference between: (a) an addition signal of a first row, first column signal and a first row, second column signal, and (b) an addition signal of a second row, first column signal and a second row, second column signal, in an area of two rows by two columns, and a second readout unit which reads out a difference between: (a) an addition signal of a first row, first column signal and a second row, first column signal, and (b)

Art Unit: 2612

an addition signal of a first row, second column signal and a second row, second column signal, in the area of two rows by two columns.

However, Ukita also disclose, as shown in figure 8, an image pickup apparatus comprised of a plurality of pixels and a color filter array of four colors (Mg, G, ye, and Cy) disposed on said plurality of pixels wherein colors of color filters within a unit of two rows by two columns are all different (clearly shown in figure 8). In addition, Ukita disclose, as shown as stated in columns 15 (lines 33 – 64), 16, and 17 (lines 1 – 59), the image pickup apparatus further comprising a first read-out unit (see column 15, lines 44 – 54) see which reads out a difference between: (a) an addition signal of a first row, first column signal and a first row, second column signal, and (b) an addition signal of a second row, first column signal and a second row, second column signal, in an area of two rows by two columns, and a second readout unit (see column 16, lines 39 – 46) which reads out a difference between: (a) an addition signal of a first row, first column signal and a second row, first column signal, and (b) an addition signal of a first row, second column signal and a second row, second column signal, in the area of two rows by two columns. As stated in columns 16 (7 – 12), at the time the invention was made one with ordinary skill in the art would have been motivated to include a first and second readout unit performing the operations as taught by Ukita in the image pickup apparatus of Takizawa et al. as a means to provide a luminance and a color difference signal for each pixel thereby yielding a high resolution color separation. Therefore, at the time the invention was made, it would have been obvious for one with ordinary skill in the art to include the first and second readout units performing the operations as taught by Ukita in the image pickup apparatus of Takizawa et al.

Art Unit: 2612

16. As for **claim 8**, Takizawa et al. disclose, the image pickup apparatus wherein areas of two rows by two columns are disposed without any space there between.

Allowable Subject Matter

17. Claims 9 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The closest prior art teaches of a read-out unit that reads out an addition signal of all signals in area of two rows by two columns, however, the closest prior art does not teach or suggest an image pickup apparatus comprising a plurality of pixels wherein a color filter array of four colors is disposed on said plurality of pixels in a one-to-one ratio (one filter- to-one pixel ratio) wherein the said color filter array has a periodicity of two rows by two columns and wherein the said four colors of the said color filters are formed in a periodical unit of two rows by two columns are all different from each other and have fixed positions; and a read-out unit that reads out an addition signal of all signals in an area of four rows by one column or an area of four columns by one row.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following is a list of the prior art made of record and the citations from within that clearly anticipate claims 1 and 38.

- o US 6 133 953 – figure 2A
- o US 6 330 029 B1 – figures 4 and 5
- o US 6 628 718 B1 – figure 11
- o US 4 245 241 – figures 2a, 2b, and 2c
- o US 4 246 601 – figure 3
- o US 6 034 724 – figure 2
- o US 2002/0012052 A1 – figure 7
- o JP 09-312848 – figure 1

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

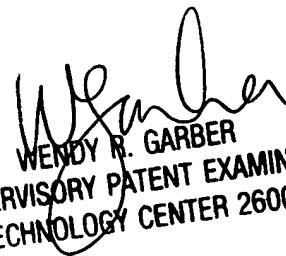
however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin P Misleh whose telephone number is 703.305.8090. The examiner can normally be reached on Monday - Friday, 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy R Garber can be reached on 703.305.4929. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is 703.306.0377.

JPM
October 14, 2003


WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600